

Application No. 10/081,580
Response to Office Action

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R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE SPECIFICATION

The specification has been amended to more accurately refer to element 37 as a resilient layer (instead of as a resilient plate), to refer to element 45 as a lid (instead of as a holding plate) and to refer to element 53 as a slide shutter (instead of as an opening and closing plate).

In addition, the specification has been amended to correct minor informalities of which the undersigned has become aware.

No new matter has been added, and it is respectfully requested that the amendments to the specification be approved and entered.

THE CLAIMS

Claims 1-5 have been canceled, and claims 6-10 have been added.

Claims 6, 7 and 10 have been prepared to recite the subject matter of (now canceled) claims 1, 2 and 5, respectively, in better U.S. form, and new claims 8 and 9 have been prepared to recite the subject matter of (now canceled) claims 3 and 4,

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respectively, in better U.S. form and to depend from new independent claim 6.

No new matter has been added, and it is respectfully requested that new claims 6-10 be approved and entered.

THE PRIOR ART REJECTION

Claims 1, 3 and 5 were rejected under 35 USC 102 as being anticipated by USP 5,989,402 ("Chow et al"); claim 4 was rejected under 35 USC 102 as being anticipated by USP 5,133,939 ("Mahe"); and claim 5 was rejected under 35 USC 103 as being obvious in view of the combination of Chow et al and USP 6,232,861 ("Asada"). These rejections, however, are respectfully traversed with respect to new claims 6-10 as set forth hereinabove.

According to the present invention as recited in new independent claim 6, a protein chip holding tool is provided for holding at least one protein chip. Each protein chip includes a resilient layer which has a number of holes arranged in a matrix therein and which is closely adhered onto an upper surface of a substrate, and each of the holes is adapted to hold a pre-determined amount of a protein test sample solution therein. As recited in new independent claim 6, the protein chip holding tool comprises a base plate including at least one substrate holding portion which holds the substrate and which is provided in an upper surface of the base plate. A lid is rotatably supported at

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one end portion of the base plate so as to be rotatable to cover the upper surface of the base plate. The lid includes: (i) at least one resilient layer holding portion which holds the resilient layer, and which is provided in a surface of the lid that faces the base plate when the lid is turned to cover the base plate, at a position corresponding to the substrate holding portion in the surface of the base plate, and (ii) a plurality of openings which extend through the lid to expose the holes in the resilient layer held in the resilient layer holding portion. And as recited in new independent claim 6, a slide shutter is provided which is slidably supported on an upper surface of the lid and which is slidable to open and close the openings in the lid.

With this structure, the slide shutter can be used to close the openings in the lid except when it is necessary for distribution needles to access the holes in the resilient layer via the openings in the lid. Thus, after a protein test sample is distributed into the holes in the resilient layer, the protein test samples are sealed from the atmosphere and are thereby prevented from drying out.

In conventional protein chip holding tools, by contrast, no slide shutter is provided and the holes are exposed to the outside atmosphere. Thus, with the structure of conventional protein chip holding tool, when very small protein test samples

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are distributed in the holes, the test samples may dry out quickly and the protein itself may be denatured.

It is respectfully submitted that Chow et al, Mahe and Asada do not at all disclose, teach or remotely suggest the above described feature of the present invention as recited in new independent claim 6 whereby the protein chip holding tool comprises a slide shutter which is slidably supported on an upper surface of the lid and which is slidable to open and close the openings in the lid.

Chow et al merely discloses an apparatus for improving the interface between a microfluidic device and an ancillary device, such as a device for monitoring the microfluidic device. According to Chow et al, fluid is inserted into the ports 24 in the microfluidic device 10, and the microfluidic device 10 is inserted into the recessed region 208 in the base 206. The cover element 202 of Chow et al is then closed over the base 206 and microfluidic device 10 such that the electrode pins 204 extending from the cover 202 are inserted into the ports 24. See Fig. 2A of Chow et al. According to Chow et al, the device may then be interfaced with an electrical controller.

It is respectfully submitted, however, that Chow et al clearly does not disclose, teach or suggest a lid that includes (i) at least one resilient layer holding portion which holds the resilient layer, and which is provided in a surface of the lid

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that faces the base plate when the lid is turned to cover the base plate, at a position corresponding to the substrate holding portion in the surface of the base plate, and (ii) a plurality of openings which extend through the lid to expose the holes in the resilient layer held in the resilient layer holding portion.

And since Chow et al does not even disclose openings in the lid, it is respectfully submitted that Chow et al clearly does not at all disclose, teach or suggest a slide shutter which is slidably supported on an upper surface of the lid and which is slidable to open and close the openings in the lid.

In addition, it is respectfully pointed out that Mahe is directed to a test tube tray, which is clearly not at all related to the protein chip holding tool of the claimed present invention.

Still further, it is respectfully pointed out that Asada is directed to an electromagnetic actuator for a galvanometer operated mirror which is also not at all related to the protein chip holding tool of the claimed present invention.

Therefore, it is respectfully submitted that the present invention as recited in new independent claim 6, and claims 7-10 depending therefrom, clearly patentably distinguishes over Chow et al, taken singly or in any combination with Mahe and Asada, under 35 USC 102 as well as under 35 USC 103.


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In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,


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